





Sections of a print using FinePrint (shown actual size)

FinePrint brings out the detail

FinePrint is a multiple shade-of-gray printing program for the Amiga computer. FinePrint lets you use a dot matrix printer to print images with true shades of gray. Normal Amiga graphic printouts use dot patterns to simulate shades of gray. This reduces the resolution and quality of the print. They can't reproduce highly detailed images properly. FinePrint can. FinePrint uses a special technique to actually build up ink on every dot in the print. Using a worn out ribbon on your printer, FinePrint can get almost photographic quality prints. Perfect for digitized video images or detailed paint program images.

FinePrint is mouse driven and very easy to use. It can print any IFF file having up to 32 colors (it prints them in black and white). It can make postage stamp sized prints, or mural sized prints. FinePrint has a special averaging mode for large prints to improve the print quality.

Printers currently supported by FinePrint: (FinePrint does not work with laser, ink-jet, or thermal printers)

Apple Canon

Imagewriter, Imagewriter II

C-Itoh 8510, C-715F

Epson

EX-800, EX-1000, FX-80, FX-85, FX-86, FX-100, FX-185, FX-286, JX-80, LQ-800, LQ-850, LQ-1000, LQ-1050, LX-80, LX-800, MX-80 (with Graftrax), MX-100 (with Graftrax),

RX-80, RX-100

IBM Proprinter, Proprinter XL Juki

5510 Mannesman-Tally MT-80

NEC P560, P565, 8023A

ML-92, ML-93, ML-182, ML-183, ML-192, ML-193, ML-292, Okidata

ML-293, ML-393 KX-P1080, KX-P1091 SP-1000, MP-1300 Panasonic Seikosha

Star Gemini-10X, Gemini-15X, NB24-10, NB24-15, NX-10, NX-1000,

FinePrint pringe



Multiple shade-of-gray printing on normal dot-matrix printers.

Easy to use

Print large or small

High detail printing

Designlab

P.O. Box 419 Owego, NY 13827

FinePrint supports other printers compatible with ones listed above

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FinePrint



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The author of *FinePrint* is Dave Jones. He has spent many years working in video and the arts, having designed image processing machines for both commercial use and artists for over fifteen years. He has been writing software for both artists and industry for over ten years. *FinePrint* evolved from a simple printing program written for video artists at The Experimental Television Center in Owego New York several years before the Amiga was designed.

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Chapter 1 Introduction

What is FinePrint?

FinePrint is a unique program that prints computer images in shades of gray. It does this by actually building up layers of ink on the paper. FinePrint works with most dot matrix printers that use a ribbon and have 'dot graphics' capabilities. FinePrint images can have very

fine detail and give prints that are sharper than other printing programs.

It is possible to print shades of gray with other printing programs, but they print dot patterns that simulate shades of gray to your eyes. This gives the appearance of shades of gray from a distance, but if you look close you can see that the image is made up of several dot patterns and not true shades of gray. This also reduces the resolution because the dot patterns

are very coarse.

With *FinePrint* you must interact with the program to get the best quality print. It is not automatic. *FinePrint* requires some patience and a worn out ribbon on your printer. The amount of ink that *FinePrint* will build up on a page is determined by how worn out your ribbon is. If you use a new ribbon, the ink is already very dark. After two or three hits of the ribbon on the same dot, your paper will be as dark as it can be. If you use a worn out ribbon, you can get many more layers of ink built up on the paper and still not saturate the paper with ink. *FinePrint* uses what look like "slide-pots" on the screen to adjust the level of ink for each of the colors of the original image (it won't print them in color though). If your ribbon is very new, you will want to keep the number of hits down to let a maximum of three or four hits of ink build up. If your ribbon is old and worn out, you will get the full range of up to fifteen hits of ink on each dot.

Resolution:

There are several kinds of resolution involved with *FinePrint*. The image that you are going to print has a specific resolution. This resolution is determined when the image is created. Typical images from paint programs or video digitizers are 320x200 or 640x400 pixels. This resolution defines how many pixels wide by how many pixels high the image is. *FinePrint* can print any resolution image.

The next type of resolution is the number of dots per inch that your printer has. This resolution is limited by the design of your printer. Most printers have at least two or three print resolutions or densities. Some printers have over a dozen densities. This resolution determines how close your printer will space the dots on the paper when you print your image. Typical printer resolutions are 120x72 or 180x180 dots per inch. You will use FinePrefs to select which of your printer resolutions to print with.

The third type of resolution is the scale of your print on the paper. This is where you combine the first two resolutions. When you print a picture with *FinePrint*, you can scale your image (no matter what resolution it is) onto the paper in any size you want. If your printer has 100x100 dots per inch and you want to print an image four inches wide by three inches high, you will be making a print that is 400 dots wide and 300 dots high. This is important to understand because you must tell *FinePrint* how big to print your image in dots wide by dots high.

FinePrint can scale any resolution image onto any size piece of paper your printer can handle at whatever density your printer uses.

How do you use FinePrint?

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FinePrint consists of two programs. The first program, called FinePrefs, is used to choose the printer that you want to use. It is also used to select various parameters for your printer. You will need to run FinePrefs once before you can use FinePrint. You will also have to run FinePrefs whenever you want to switch printers.

The second program is FinePrint. After you run FinePrint, you load in an IFF picture from a paint program or video digitizer. FinePrint will only work with images that have thirty-two colors or less. This means that it can't work with HAM mode images. There are no limits on the resolution of the image you can load in. You can load in brushes that may only be a few pixels square, or you can load images of 1000x1000 pixels or even bigger. Once you have loaded an image into FinePrint, you will see your image in the lower left corner of the screen. At the top of the screen are the slide pots you use to adjust the gray scale of the image. Move the sliders until the image looks right. Then you start printing with a menu selection. There are menu options that change the quality of the print. They are explained in chapter 4 of this manual. The sliders that you use to choose the shades of gray in the print are known as the palette. There are three sets of sliders, or three palettes you can set and use. Only one of them is used at a time, but you can experiment by setting palette one to the original shades and palette two to some other values without loosing the original settings. That way if you don't like the look of the second palette, you still have the original settings and don't have to play with the sliders to get back to where you were.

There are controls on the screen to adjust the scale of your image to any size you want (within reason). *FinePrint* can print an image a fraction of an inch square, or a hundred feet high. If the image is a 320 x 200 image and you print it as 20 x 20, you will not recognize the

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image, but it will be very tiny. If you print an image larger than will fit on a page, you will have to tape or glue several pages together to see the whole image. For large prints there is a special averaging feature that will improve the look of the prints, but will slow down the printing. Because of the time involved, and the wear on the printer, it is recommended that you limit the size of prints to a couple of feet tall. A ten foot image might take a week to print if you use averaging (it might contain 200 million dots). The program was originally intended to do prints that fit on one sheet of paper.

Before You Start:

Before you use *FinePrint* you should make a backup copy of the disk and store the original in a safe place. After that, only use the copy. Refer to your Amiga manual for instructions on copying a disk. You can make as many backup copies as you need, but please don't give copies to anybody else.

FinePrint is not on a bootable disk, so you may want to copy all the files on this disk to a bootable workbench disk. From the CLI just type:

COPY FinePrint:#? diskname:

Diskname is the name of the disk to copy onto. From the workbench just drag the icons of the programs over to the window of the disk you want them on.

Chapter 2

Getting Started:

The first time you run *FinePrint*, or any time you wish to change your printer, you will need to run *FinePrefs*. This is a very simple program that lets you select the printer, print resolution, and printer port for *FinePrint* to use. This is similar to the Amiga Preferences program, only simpler. It does not change anything set by the Amiga Preferences, so you can set *FinePrefs* for a different printer than your normal Amiga Preferences printer.

Before running *FinePrefs* you should know the brand and model of your printer, and whether your printer uses the serial or parallel port. If it uses the serial port you will need to use Amiga Preferences to set the Baud rate and other serial parameters. You can tell which

port your printer uses by looking at the name of the port that the printer cable is plugged into. Most printers use the parallel port.

FinePrefs and FinePrint use the mouse for everything. If you are not familiar with using the mouse, read your Amiga manual.

Using FinePrefs:

FinePrefs is a configuration program for FinePrint. It should be in the same directory as FinePrint when you run it.

Run *FinePrefs* by typing it's name in at the CLI or by double—clicking on the icon from workbench. Once you run *FinePrefs* you will see a screen full of gadgets. There are four groups of gadgets. The first set is for the printer port. Just point to the word "Serial" or "Parallel" and click the left mouse button. The word will become highlighted.

Next you must choose the printer. There are three rectangles with printer names in two or three of them. Click on the arrows to change the selection. Keep clicking until your printer is in the center rectangle and is highlighted. The printer list is in alphabetical order. Some printers have more than one listing because they have more resolutions to choose from than will fit in the resolution list. If the printer has a wide carriage, there will be a separate listing for each paper size. Start with the first choice that has your brand and model number. If your printer is not in the list, then contact Designlab. More printers are added all the time.

Once you have selected your printer, you need to choose the resolution. Most printers can print at several different resolutions on the paper. The choices will be shown as the number of dots per inch horizontally by vertically. For example, "120 x 72" means 120 dots per inch left to right and 72 dots per inch up and down. This resolution does not relate to the image resolution on the Amiga because any resolution IFF image can be printed at any print resolution. What the print resolution chooses is how tightly to space the dots on the paper when printing. The lower the resolution, the faster the print will happen. The higher the resolution, the better the image will look (up to a limit). The best thing to do is to experiment. Start with a resolution in the range of 80 to 120 dots per inch. If your printer model shows up more than once then you have many resolutions to choose from and will want to look them all over before making a choice. Once you have decided on a resolution, just point to it and click the left mouse button.

The last choice is easy. If you want to give up, and not choose a printer, just select "Cancel" at the bottom of the screen. If you choose "Save" instead, you will create a small file called "Fine.cfg" on your disk that contains the configuration data for your printer. If you move FinePrint to a new disk, copy this file with it or you will have to run FinePrefs again.

Using FinePrint:

Run FinePrint the same way as FinePrefs, from the CLI by typing in it's name, or from workbench by double-clicking on it's icon. Once FinePrint loads you will see a screen with many gadgets on it. There are also several pull-down menus to choose from.

Loading an Image:

Before you can print anything, you need to load an image to print. Use the mouse to choose Load Picture from the Project menu. A file requester will show up. If the FinePrint disk is not in DF0: then hit the gadget at the bottom of the requester that shows the drive that this disk is in. If you have it in a device that is not shown, then click on the rectangle at the top of the requester and type it's name in. You should now see a list of files that are on the FinePrint disk. Use the slider on the right side to go through the whole list. Move it until you see the name 'Cartoon'. Click on that name. The name should now show up in the box at the bottom of the requester. Hit the 'OK' gadget and the image will load.

Setting the Sliders:

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Start by making a selection from the Ribbon menu. Choose New, Medium, or Old depending on how worn out your ribbon is. If you have a brand new ribbon, just select New.

If you have an old ribbon, select Old. Otherwise select Medium. This is the most common selection.

The sliders were set to values that make sense for this picture by just loading the image. You can play with them to give the image different looks. First click on the '2' box under the sliders. The sliders will all go to the bottom and the image will turn white. Now select "Copy Palette' and 'From 1' in the Palette menu. This will copy the palette in number 1 into palette number 2. You can now adjust the sliders without loosing the original settings. Play with the first few sliders and watch the changes in the image. (Hint: if you have a dark ribbon, keep the image very light)

Printing:

When you are ready to print, make sure your printer is ready and select 'Print' from the Print menu. Now you wait. It will take a couple of minutes to print this picture. If you don't hear the printer making sound within a minute, there may be something wrong. The most common problem is not having the printer on line. Most printers have a button on the front that puts them on line. If the print looks too dark while it is printing, you can select 'Stop' from the Print menu and set the sliders down lower.

Size:

The picture was printed at a default size setting, but you can change the size. To make it

print twice as big, just change the numbers in the Width and Height boxes to be twice as large as what is in them now. Just click the mouse in the box, delete the number, and type in a new size. The larger the print, the longer it will take to print. Remember that an image of twice the width and twice the height will have four times as many dots, and will take four times as long to print.

Centering:

This first image was printed at the left of the page. To move the image more to the right, use the centering control. If you position the image too far to the right, it will only print part of the image.

Oversize Printing:

To print an image that is twice as wide as a sheet of paper, you should set the width control to a number that is twice as big as the page width. Set the height to a proportional size. Print the first page with the centering control all the way to the left. Print the second page with the centering control in the middle. If you were printing an image that is four times bigger than a page, you will want to set the centering control to the left, then the first quarter, the middle, and finally the third quarter. When printing large, the centering control sets the position in the image that printing will start at.

Most printers will print up to eight inches wide or thirteen and a half inches wide. You can

calculate how many dots will fit on a page by multiplying the width of the page by how many dots per inch. For example, an eight inch wide print at 120x72 dots per inch will have 960 dots across the width of the paper.

Experiment:

The key to using this program is to experiment. You will need to experiment with the sliders to find the best shades of gray for your ribbon. You may also want to experiment with different types of paper. Try many sizes and aspect ratios. If you print large, try both averaging modes. Also try printing sideways (but remember to change the width and height controls to correct for the aspect ratio).

Chapter 3 The Gadgets

Gadgets - The Sliders:

There are 32 sliders at the top of the screen that are used to select the amount of ink to build up on your print. Each slider represents one of the color palettes of the original image. When a slider is down all the way, the corresponding area of the image will have no ink printed in it. Each step up on the slider represents one strike of the ribbon on the paper. If the slider is all the way up, you get the most ink, for the darkest image. This may be three, seven, or fifteen strikes on the paper, depending on the setting of the Ribbon menu. As you change the sliders, the image in the lower left of the screen will change to match the settings (if you have loaded an image).

Don't expect to get fifteen evenly divided shades of gray on the paper. If you use a new ribbon you will get three or four dark shades. With a worn out ribbon you will get sixteen shades of gray (including white or no ink), but there will be more difference between shade two and three than between shades fourteen and fifteen. To get a more even distribution of grays, you can set the sliders to 0, 1, 2, 4, 8, and 15. This only gives you six shades of gray, but they are easily distinguished from each other. Try printing the grayscale picture on the *FinePrint* disk with different ribbons to see how worn out they are.

Gadgets - The Palette Buttons:

Under the palette sliders are three buttons marked 1, 2, and 3. There are three sets of sliders for setting the shades of gray, only one set can be seen at a time. The palette buttons are one way to choose which set of sliders you are working with. The reason for three sets is

3 4 5

so that you can play with the settings for a new image without loosing the original settings. Just click on one of the palette buttons and the sliders will all change to the values stored in that set. The number of the current palette will be highlighted.

Gadgets - The Size Controls:

There are three controls that set the size and position of the image to be printed. The Width and Height controls define the size of the image on the paper in dots. If you are printing with a printer that has 120 x 72 resolution, and you tell it to print a picture with a width and height of 120 x 72, then you will get a one inch square picture. If you tell it to print a picture with width and height of 480 x 200 you will get a picture that is about four inches wide and two and three quarters inches tall. That will print a 320 x 200 Amiga image at about the correct aspect ratio. The important thing to remember is that whatever picture resolution you have will be scaled to fit the print size that you define in the Width and Height gadgets. If you set the gadgets to 480 x 200, any image you load will print at the same size, no matter what the resolution of the actual image is. You can enter any height and width, and the program will try to print at that size.

The third control is actually two controls. They are for setting the centering of the print. One of the controls is a slider, and the other is a text gadget. You can move the slider and the text will change, or you can type in a setting and the slider will move to match. If the print is to be smaller than the page, the centering control will position the print on the page. If the Width control is set larger than what will fit on one page, the centering control is used to choose which part of the image to put on the paper. If the width is set to four times the size of

one sheet of paper, you will have to make four prints with the centering control set to four different settings. The first image with centering set to zero, the second set to 25% of the width of the image, then 50%, and finally 75%. These settings represent the start of each quarter of the picture. For a large picture you will have to tape or glue the strips together. You may also want to trim the edges of the paper so that they butt up against each other.

When the Width control is set to a size smaller than the width of the page and you move the Centering slider from side to side, you will see numbers from zero to the width of the page in the text gadget. If the Width control is set larger than the width of the page and you move the Centering slider, you will see numbers from zero to the width of the image.

When you are centering a picture on a page, you must realize that the Centering control selects the dot on the page for the start of the image. If you want to center a 320x200 image on a page with 720 dots across, you don't set the Centering control in the middle. That would put the left side of the picture in the middle of the page. You must use a calculation like:

(width of page /2) – (width of image /2)

This is because the width of the page divided by two will give you the center of the page and you must subtract half of the width of the image from that to get to the place on the page where you want to start the print. If this sounds too complicated, just experiment with the slider and print part of a picture until you like the centering. You can print a couple of lines of a picture and stop (see the menu controls).

Gadgets - The Paper Feed Buttons: There are two gadgets labeled LF and FF. The LF button causes the printer to do a line feed. Just click on the letters LF and the printer paper should move out one line. By clicking on the FF button, you will cause the printer to do a form-feed, forcing the paper out to the top of the next page.

Chapter 4

The Menus

Menus - Project:

-Load Picture-

This selection is used to load an image into *FinePrint*. Make sure you have selected the palette you want to use before selecting this function. A file requester will appear and let you choose the disk, directory, and an image to load. You must select an IFF format image, but not a HAM image. *FinePrint* can't print HAM images. As the image is loaded the sliders will be set to the average of the red, green, and blue values of each color in the original image. The image will be displayed in the lower left corner of the screen. Above the image will be displayed it's size and name.

-Save Picture-

When you have set the sliders for a picture that you will want to print again, you may want to save the picture with it's new palette (or just the palette, see Save Palette). When you select this menu item you are presented with a similar file requester to the one used in loading a picture. If you save the image using the same name as the original image, it will replace the original and you will loose your original image. You may want to use a new name for the saved image.

FinePrint gives you a choice of four pointers to choose from. They all have a blinking 'hot spot'. By blinking the hot spot, you will be able to find the pointer anywhere on the screen. The spot stops blinking while printing or other actions are taking place.

-Quit-

This one is pretty simple. It is used to exit the program.

Menus - Palette:

-Load Palette-

This selection is used to load a palette from a disk. You can select an image, a color palette file, or any IFF file that contains a color palette. Only the color palette information will be loaded. If you give the name of an image, the image itself will not be loaded, only the color palette (which is converted to black and white). The new palette will be loaded into the current set of sliders, so be sure you are using the palette that you want filled with the new information (see Palette 1, 2, or 3).

-Save Palette-

You can save just the palette information to disk instead of saving the whole picture. Be sure to use a unique name or you will end up erasing your picture when you save the palette (hint: add something like .col to the end of the name). These palettes are saved as IFF files and can be loaded into some other programs.

-Restore Palette-

When you use Load Picture or Load Palette, the settings of the sliders are first saved. If you decide that you want them back, just use Restore Palette.

-Copy Palette-

This selection lets you copy one of the other palettes into the current palette. First set the current palette to be the palette where you want the copy to go. Then select Copy Palette and choose which palette to copy from. That palette will then be copied into the current palette and the sliders will be set to the new values.

-Palette 1--Palette 2--Palette 3-

These three menu items are used to select the current palette. They are the same as hitting the palette gadgets. When you choose one of these, the sliders will change to show the setting of that palette. There are three palettes in *FinePrint*, and you may print with any one of them.

Menus - Mode:

-Averaging 1--Averaging 2-

If you are printing a large print, averaging will soften the edges of the pixels so you don't get large square pixels on the paper. Averaging will round off the corners of the pixels so they blend from one pixel to the next. You can use averaging on small prints, but it won't have much effect. One warning about averaging, it will take longer to print your picture if you use averaging. There is only a subtle difference between Averaging 1 and Averaging 2. Averaging 1 does a better job of smoothing edges where there is one hit of ink next to white paper. It doesn't do as good where there is a darker area next to white. Averaging 2 does a better job of averaging dark areas next to white, but will turn a one pixel line of shade of gray one into a line of dots. You will have to experiment in order to find the best mode for a particular picture.

The image can be printed on the paper rotated by 90 degrees. All of the controls stay the same. The Width control still sets the width of the print on the paper. It does not represent the width of the image. While printing sideways, it adjusts the height of the image which is the width of the print when looking at your printer from the front.

Menus - Ribbon:

The three selections in this menu are used to tell the program how old your printer ribbon is. It becomes very important to know how worn out your ribbon is when deciding how many times to strike the paper for each of the shades of gray that you want to build up on the page.

-New-

When you have a new ribbon, you can only hit the paper a couple of times before the paper looks black. This selection automatically scales the sliders in the range of zero to three strikes on the paper.

-Medium-

This selection will scale the sliders to work in the range of zero to seven strikes on the paper. This is used for most slightly used ribbons.

-Old-

This selection is used if you have an old ribbon in your printer. With an old ribbon, you can get a wide range of shades of gray from the printer. This selection will automatically scale the sliders in the range of zero to fifteen strikes on the paper.

Menus - Print:

-Print-

This is the main printing control. Use this menu item to start the printing process. Make sure that your printer is powered up and on line. The pointer will stop blinking as soon as you choose this menu item, and won't blink until printing is done.

-Stop-

This item is not enabled until printing is started. When printing starts, the Print selection is disabled and the Stop selection is enabled. You can stop printing at anytime. Your printer may continue for a little while because it's buffer may still have some data in it. The pointer will start blinking as soon as control has returned to the program. At that time Stop has been disabled and Print has been enabled again.

Hot Keys:

22 23 24 Most of the menu selections in *FinePrint* also have what are known as 'Hot Keys'. A hot key is a key combination that you can hit on the keyboard to do the same function as a menu item. The key combinations that you must hit are shown next to each of the menu items. Each of the key combinations consists of holding the key to the right of the space bar (known as the 'Right Amiga' key) and then hitting another key. For example to start printing you would hold down the right Amiga key and hit the 'P' key.